

Abstract

Title: Effect of Alkaline Water Consumption on Sports Performance

Objectives: The aim of the work was to find out the differences in performance after three days of intake of alkaline water in comparison with intake of water with normal pH.

Methods: The thesis is conceived as an experimental study. A total of 12 participants aged 19-28 participated in the study. Volunteers were students of the UK FTVS military field. The testing included repeated crate outputs (Step-test), reaction rate tests on visual and auditory stimuli. Before and after exercise, blood lactate value, specific urine weight, and body diagnostics were recorded using a bio-impedance device. The study lasted a total of 3 weeks. Testing was performed with weekly spacing in controlled drinking regime of common or alkaline drinking water, always 2 days before testing. The obtained data were then analyzed and processed.

Results: The average power of the Step-test participants in the first part of the measurement for both tests after the use of plain water is 718,8 W, compared to the average power of the participants after the use of alkaline water, which is higher and reaches 848,8 W. The test was 15,7 % with placebo and -0,9 % with alkaline water. The average perception of fatigue after drinking alkaline water was lower than that of placebo 8,8. The mean change in response rate to both visual -0,2 % and auditory -4,9 % stimulus after the 1st placebo test was higher than with alkaline water. After step 2, the mean change in light response was 2,5 % and the sound 3,8 % higher in people drinking alkaline water. The resting lactate level before exercise after the use of plain water was on average $1,5 \text{ mmol}\cdot\text{l}^{-1}$. and after loading $9,5 \text{ mmol}\cdot\text{l}^{-1}$. The mean resting lactate level before exercise after alkaline water use was $1,9 \text{ mmol}\cdot\text{l}^{-1}$ and after exercise $9,8 \text{ mmol}\cdot\text{l}^{-1}$. After a three-day use of alkaline water, the average increase in the value of lactate after exercise was 555,1 % and after the use of plain water the average value of the increase in lactate after exercise was 658,0 %.

Keywords: alkaline water, anaerobic performance, reaction time, Step - test, lactate, pH